Unit Two
EBP Basics

What do we mean by evidence?

- Useful evidence is defined by information/facts that are systematically obtained in a manner that is observable, credible, replicable, verifiable and supportable.

- Evidence is all the data for any alleged fact whose truth is investigated; the proof.

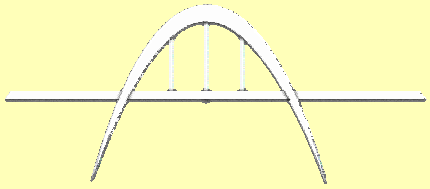
What types of evidence are there for clinical decisions?

- Empirical Research: quantitative and or qualitative
- Practitioner and or Professional expertise
- Patient Values/Preferences

****Sixty Second Review of Research Approaches****

Qualitative = collection of data in order to gain insight/understanding into a phenomena [description of a lived experience and what it means which might include describing the commonalities and themes].

Quantitative = collection of data in order to answer specific questions, describe relationships or test hypotheses. The best research is often a combination of both qualitative and quantitative aspects of a phenomenon.



Research Purposes and Questions (from Polit/Beck 2005 6th Edition)
PH = phenomenon

Purpose	Quantitative	Qualitative
Identification		What is the phenomenon (PH)? What is its name?
Description	How prevalent is the PH? How often does the PH occur? What are the characteristics or features of the phenomenon?	What are the dimensions of the PH? What variations exist? What is important about the PH?
Exploration	What factors are related to the phenomenon? What are the antecedents of the phenomenon?	What is the full nature of the PH? What is really going on here? What is the process by which the PH evolves or is experienced?
Explanation	What are the measurable associations between PH_1 and PH_2 What factors cause the PH? Does the theory explain the PH?	How does the phenomenon work? Why does the phenomenon exist? What is the meaning of the PH? How did the phenomenon occur?
Prediction	What will happen if we alter a phenomenon or introduce an intervention? If PH[X] occurs will PH [Y] follow? What factors predict the phenomenon?	
Control	How can we make the PH happen or alter its nature or prevalence? Can the occurrence of the PH be prevented or controlled?	

What do we mean by strength and quality of evidence?

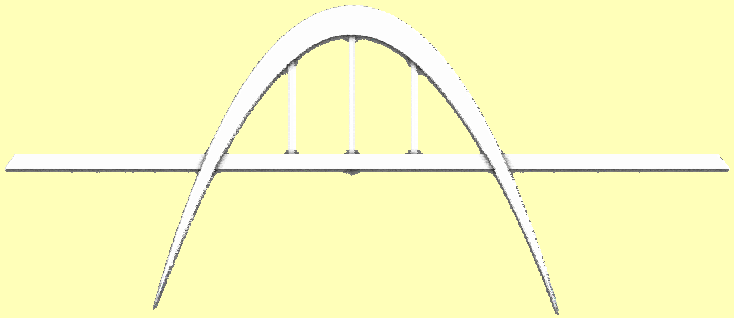
The key question when facing any evidence is: ***HOW CLOSE DOES IT COME TO THE TRUTH?***

How close a study or group of studies comes to the truth is its strength. The robustness of the study design is described as its quality. Design attempts to reduce bias and errors. Quality of a study is defined "as the confidence that the trial design, conduct and analysis has minimized or avoided biases in its treatment comparisons" (Mohler, 1995). Bias and error limit the ability to draw accurate conclusions.

Caution: There are over 100 systems to rate the strength and quality of evidence. Our NIH EBP initiative will use the Melnyk and Fineout-Overholt criteria.

What do we mean by levels & grades of evidence?

Visually the levels of evidence are often depicted as a hierarchy, but don't fall into the hierarchy trap. The trap is in thinking that only certain kinds of evidence have merit. All types of evidence may be applicable. The difference is in their strength & quality. Level refers to the ranking the validity of evidence about prevention, diagnosis, prognosis therapy and harm. Grade refers to clinical recommendations.



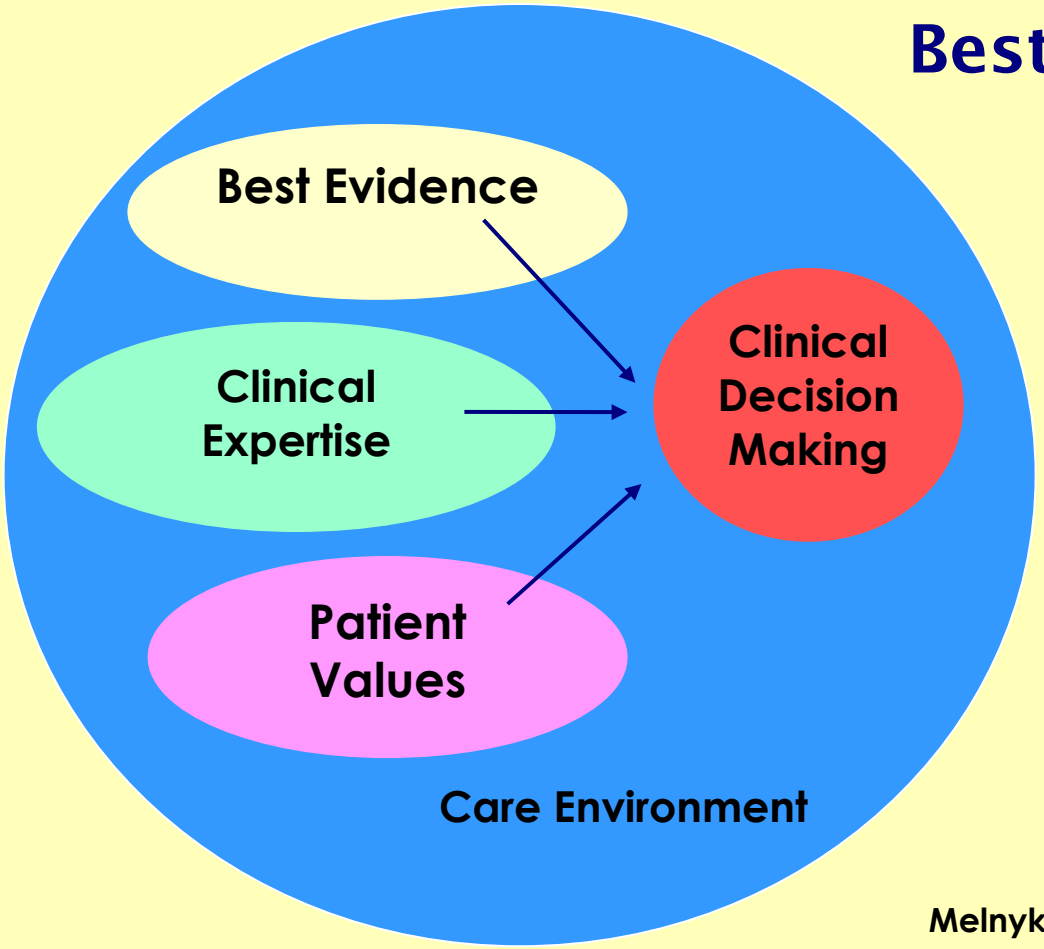
Please see: Centre for Evidence-Based Medicine
http://www.cebm.net/levels_of_evidence.asp

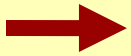
Notice in the hierarchy the patient preferences and values were not a category. In order to have a useful clinical application the practitioner should consider patient/family values and preferences. Remember, too, different forms of evidence are required to answer different questions.

BEST CARE/PRACTICE is the interplay of multiple factors –
a merger of research evidence
the care environment,
expert practice/expertise of practitioner
patient preferences and values

Photo from NHS Trust

Best Practice





Melnyk/ Fineout 2003

Are there groups that grade (synthesize) the evidence for you?

Professional groups who are expert & trained in the content, knowledgeable of research designs, statistics, and analysis often grade the evidence. Below are a few such groups:

- Cochrane Database of Systematic Reviews
http://www.cochrane.org/reviews/index.htm

- Agency for Health Care Research and Quality http://www.ahrq.gov/clinic/epcix.htm

- InfoPoems-clinical practice information database*
http://www.infopoems.com/ * not available in NIH library

- McMasters University
http://hsl.mcmaster.ca/resources/ebpractice.htm

- DARE database of Abstracts of Reviews of Effects
http://www.york.ac.uk/inst/crd/darefaq.htm

- Trip (Turning Research into Practice)
http:// www.tripdatabase.com/index.html

- Center for Evidence-Based Medicine

http://www.cebm.net/

Point of Care Learning

POEMS is a term you will see in the EBP literature, it stands for Patient Orientated Evidence that Matters. It is a mnemonic invented by Slawson and Shaughnessy (physicians at UVa/Penn). Articles that address, [a] a clinical question commonly encountered in practice [b] reports patient outcomes and [c] having the potential to change practice are called POEMs. Example, the standard of care for a corneal abrasion is to patch the eye. Recent research from randomize control trials (RCT) states not patching the eye results in faster healing with less pain. This valid information leads to a practice change—a poem. The American Academy of Family Physicians has accredited three point of care EBP resources which can be accessed at the beside for learning and immediate availability of the best evidence [using a PDA for example]. The three accredited EBP resourcesS are Infopoems™, Physicians information and education resource (PIER™) and UptoDate™. Currently the only one available here at the NIH is UptoDate™. Photo from San Diego Union-Tribune

60 Second Tutorial on Study Types

Systematic Review = a form of structured literature review that addresses a question that is formulated to be answered by analysis of evidence. The relevant literature is extracted, appraised and synthesized to formulate the findings (nlm.nih.gov). Note: in a narrative review the author simply summarizes a *selected* group of articles. This type of review is not a systematic review.

Meta Analyses = a method of analysis which uses statistical methods to combine the results from a number of studies examining the same question, in an attempt to summarize the totality of evidence relating to a particular issue. Meta analysis includes both qualitative and quantitative components. A systematic review may or may not include Meta analysis.

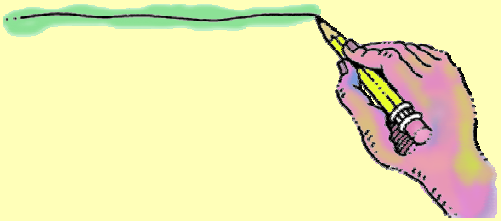
Cohort Study= An observational study in which outcomes in a group of patients that received an intervention or exposure to XYZ are compared with outcomes in a similar group who did not get the intervention or the exposure (McMaster).

Case Control = A study designed to investigate whether a particular exposure (for example, exposure to an industrial pollutant) is associated with an outcome (for example, a particular type of cancer). First, the researchers identify the cases (people known to have the outcome) and the controls (people free of the outcome). Second, they look back in time to find out which people in each group had the exposure. Third, they compare the frequency of the exposure in the cases to those in the controls. (Cancer Research UK)

Randomize Control Trial = Randomized controlled trials are studies that randomly assign individuals ,i.e. every individual has an equal chance to be chosen to either an intervention group or to a control group, in order to measure the effects of the intervention. RCT are often called the gold standard of research.

Sources of Study Type error = results can occur by pure chance --this is why we use statistics-- to assure that the results are not solely by chance alone. Error can come from confounders, or other factors that could be influencing the outcome, such as age. Confounders can be limited by stratification, matching etc.
(U of Vermont Med School)

Bottom Line

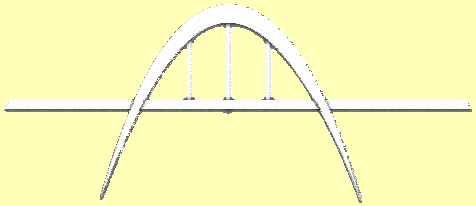


How confident one can be that a body of evidence provides information on which clinicians can act is based on these 3 domains:

1. **Quality** = extent to which bias was minimized
2. **Quantity** = magnitude of effect [power], numbers of studies, and sample size or effect size [number of patients to detect a statistically significant difference]
3. **Consistency** = similar findings are reported using similar and different study designs

Let's go back to our original clinical problem—should family be present during patient resuscitation? What evidence is there to help us make a clinical decision? And if we find any evidence will we be able to determine the strength and quality of the evidence?

Clearly, locating, appraising and synthesizing evidence from the primary literature during care delivery is beyond the scope of a busy individual care provider. Still to be effective, the EBP practitioner must possess some ***core skills*** in accessing the literature, interpreting study results and making clinical judgements. (Roberts/Yeager 2005)



The EBP Process

1. Formulate an answerable question
2. Search for the best evidence
3. Appraise and analyze the evidence
4. Apply the evidence to particular patient or groups of patients
5. Evaluate the outcomes

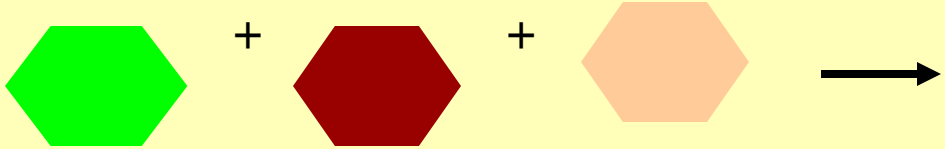
Definitions supplied by the Father of EBP, DL Sackett

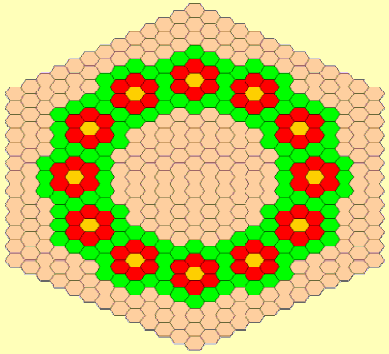
Evidence-Based Practice is the conscientious use of current best evidence in making decisions about patient care. It is a problem solving approach to clinical practice that integrates:

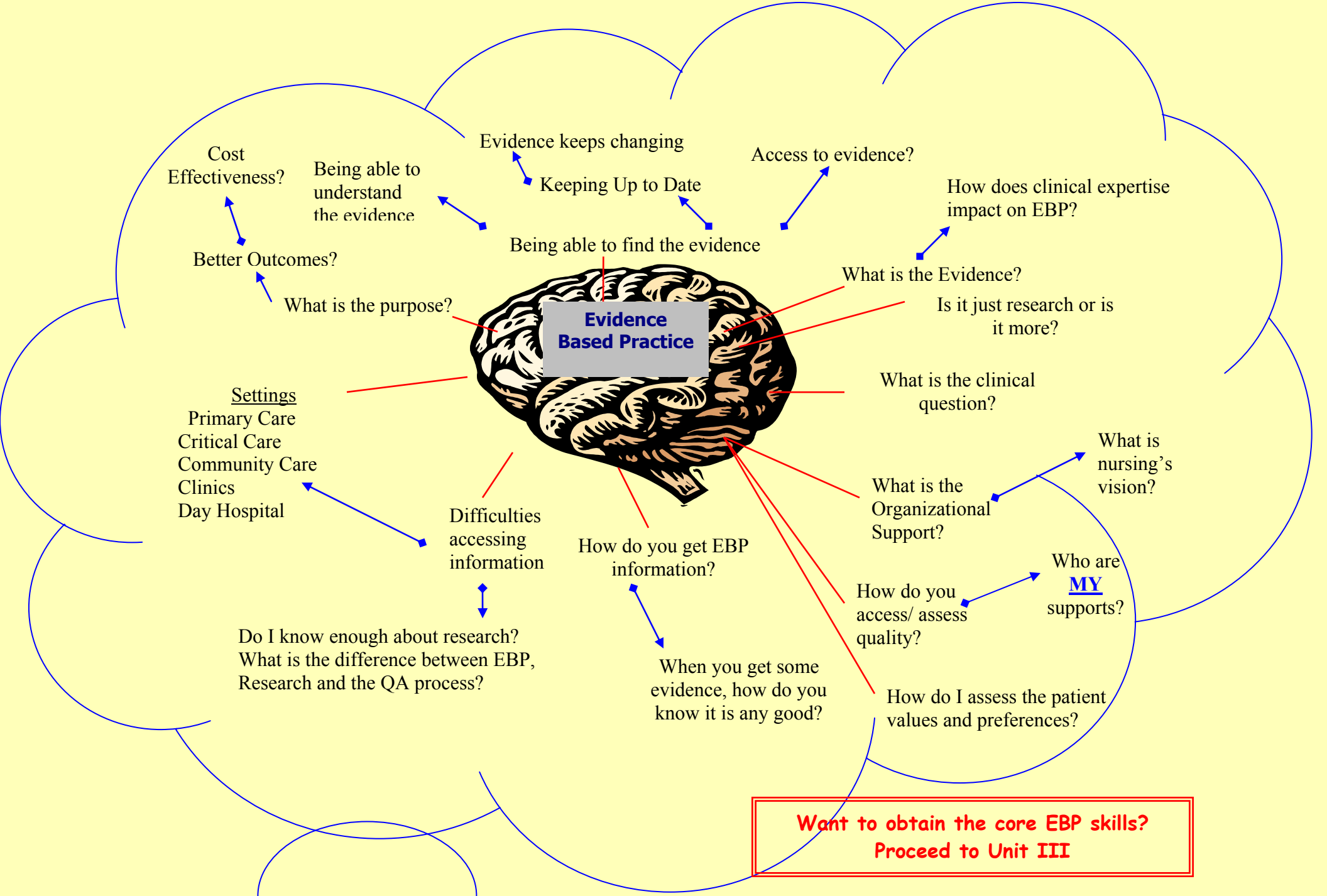
Clinical expertise, research evidence through the critical appraisal of the most relevant literature, and patient preferences and values. Sackett (2000)

Reality √

EBP is not a project but a **PROCESS**—a way of doing to produce an outcome.







Want to obtain the core EBP skills?
Proceed to Unit III

A Mind Map of Evidence-Based Practice

(Draper 2004)